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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,885	09/23/2004	Tatsukazu Kimura	CU-3914 RJS	8117
26530	7590	03/20/2007		
LADAS & PARRY LLP 224 SOUTH MICHIGAN AVENUE SUITE 1600 CHICAGO, IL 60604			EXAMINER MAKI, STEVEN D	
			ART UNIT	PAPER NUMBER
			1733	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/20/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/508,885	<b>Applicant(s)</b> KIMURA ET AL.	
	<b>Examiner</b> Steven D. Maki	<b>Art Unit</b> 1733	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>120406</u> . | 6) <input type="checkbox"/> Other: _____  |

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1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 808 (JP 08-112808) in view of Hauber et al (US 6,878,321), Sucech et al (US 5,683,635), Watras (US 2001/0044016) and Birdsey (US 1,514,827).**

Japan 808 discloses making a plasterboard comprising forming a slurry by mixing water, calcined gypsum, and additives using a mixer 120, supplying a high density gypsum slurry 130 from the mixer, depositing the high density gypsum slurry 130 on a lower paper 110, using a spreader roll 14 to form a spread portion and non-spread portions on the lower paper sheet 110, supplying a low density gypsum slurry 200 from the mixer 120, depositing the low density gypsum slurry on the deposited high density slurry 130, supplying a high density slurry 130 from the mixer 120, depositing the high density slurry 130 on the overlay sheet 160, forming a layered structure of the overlay sheet - gypsum slurry - lower paper sheet, rough cutting the layered product, hardening the gypsum slurry, cutting the rough cut product to a predetermined product length board and drying the board. Japan 808 teaches that use of a high density slurry for the edges prevents dryout and loss of strength of the edges. Japan 808 is silent as to the specific construction of one mixer 120 for supplying the high density gypsum slurries and low density gypsum slurry.

As to claim 5, it would have been obvious to one of ordinary skill in the art to supply the three streams desired and disclosed by Japan 808 from a **disk-type rotary mixer** by extracting portions for the first and third gypsum streams using fractionation ports of the mixer and using a delivery pipe connected to the mixer to deliver the remainder of the slurry over the face paper so as to form the gypsum core slurry since Hauber et al, directed to making gypsum boards, suggests supplying first and third gypsum slurry streams to facing and backing sheets and supplying a second gypsum slurry stream for a core using a disk-type rotary mixer 30, separate controllers 36, 46, 136 and outlets 34, 48, 134 ("delivery pipes") so that, in addition to using one mixer to provide all three streams, additives can be added to each stream as desired (figure 1, col. 6 lines 19-53, col. 11 lines 10-55). Although Hauber et al teaches using glass fiber mats for the sheets, Hauber et al teaches that paper may be used. See col. 5 lines 53-65. As to the slurry in the mixer containing additives, Japan 808 teaches including additives with calcined gypsum and water in the mixer. As to the specific core composition, it would have been obvious to one of ordinary skill in the art to pour **foam** into the remaining slurry used to form the core slurry in view of (1) Hauber et al's teaching to that additive(s) may be added to the core slurry (col. 8 lines 44-57), (2) Hauber et al's suggestion to use a core gypsum slurry 44 containing foaming materials which are not added to the dense slurry 38 applied to the face sheet (col. 8 lines 44-57), and (3) Sucech et al's suggestion to add foam to a core slurry obtained from a mixer in order to form a lightweight wallboard. The formation of a lightweight gypsum core would have been desired by Japan 808 since Japan 808 teaches using a low density gypsum

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slurry for the core instead of the high density gypsum slurry for coating the sheets.

Motivated by the desire found in Japan 808 to use one mixer 120 to supply three gypsum streams, one of ordinary skill would have found it obvious to employ the mixer described by Hauber et al for such purpose. Motivated by the desire found in Japan 808 to use a low density core gypsum slurry, one of ordinary skill in the art would have found it obvious to add foam to the gypsum slurry for the core as described by Hauber et al and Suche et al to obtain the desired low density.

Japan 808 does not appear to recite folding the lower paper sheet and adhering the overlay sheet to a margin of the lower paper sheet.

Watras discloses a method for manufacturing gypsum board comprising providing a face paper 111; forming a thin layer of gypsum slurry on the face paper from a first gypsum slurry stream using first conduit 115 and spread roller 117; forming a gypsum core slurry (the bulk of the slurry) on the thin layer of gypsum slurry from a second gypsum slurry stream using a conduit 119; forming a thin layer of gypsum slurry on backing paper from a third gypsum slurry stream using conduit 121 and spreading roller 123; folding the face paper on the slurry; applying the backing paper so as to form a laminate (stack); curing / drying the laminate and cutting to form a gypsum board. See figure 1, figure 3, paragraphs 25 and 31. Watras teaches that the first and third streams are denser than the second stream for the core (paragraph 25). With respect to slurry composition, Watras discloses using calcined gypsum and water to form a gypsum slurry (paragraph 29).

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As to claim 5, it would have been obvious to one of ordinary skill in the art to use Japan 808's plasterboard manufacturing method such that sheets 110, 160 are paper sheets, the lower paper sheet 110 is **folded** and the upper paper sheet 160 is adhered to a margin of the lower paper sheet since (1) Watras, directed to making wallboards, teaches folding the face paper on the slurry and applying the backing paper over margins of the face paper (figure 3) and (2) Birdsey, directed to making wallboards, suggests folding a face paper sheet on a gypsum slurry and applying and adhering a backing paper sheet to margins of the face paper so that the paper sheets are maintained together (page 1 lines 97-110, figures 6-9). Watras specifically suggests folding the lower paper sheet (figures 1, 3) in a plasterboard manufacturing process, which like that of Japan 808, uses three gypsum slurries. Birdsey evidences the customary practice in the plasterboard art to overlap the edges of the paper sheets and adhere the overlapping edges together (page 1 lines 97-110, figures 6-9)

With respect to the length of the spreader roll, it would have been obvious to one of ordinary skill in the art to provide the spreader roller with a **length of 98-108%** of the distance between boundary lines of the front surface and side surface such that the spread and non-spread portions are formed on the face paper since Japan 808 teaches providing the spreader roll 14 with a length smaller than the width of the lower paper sheet (paragraph 15 of machine translation).

As to claim 6, Japan 808 teaches spreading gypsum slurry on a backing sheet using a spreader roll 14 of a roll coater 100.

As to claims 7 and 10, Japan 808 teaches a coating thickness of 100-500 microns (0.1 mm to 0.5 mm)

As to claims 8 and 11, Sucech et al teaches that materials such as accelerators, retarders, fillers, binders, etc. are often employed in slurries to prepare gypsum products and as such it would have been obvious at least one of those materials (e.g. retarder) along with the calcined gypsum and water in the rotary type mixer.

As to claims 9 and 12, it would have been obvious to add foam to the first and third streams for coating the sheets 110, 160 since Sucech et al suggests adding a *low concentration* of foam using inlets 34, 36 since completely unfoamed gypsum may be too hard.

#### Remarks

- 3) Applicant's arguments with respect to claims 5-12 have been considered but are moot in view of the new ground(s) of rejection.
- 4) No claim is allowed.
- 5) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki  
March 18, 2007

  
STEVEN D. MAKI 3-18-07  
PRIMARY EXAMINER